



INFORMATION AND COMMUNICATION

Goal: Collect and analyze internal and external information to monitor and enhance program effectiveness. Communicate internally and externally to accomplish our mission and to build an understanding of the Federal role in wildlife damage management.

INFORMATION SERVICES

Information Transfer—Information Services staff developed an automated audiovisual equipment reservation system for Fort Collins employees and began recording videotaped inhouse seminars on CD-Rom for distribution to field stations. A systematic revamping of NWRC's research project Webpages was also begun. Besides the Information Services page, the most notable additions include descriptions and photos of current Bird Research Program projects, detailing of NWRC's immunocontraception work, and full text of NWRC-authored 2000 publications. Work has also continued on developing the curriculum and Internet-based materials for the Living with Wildlife Institute for teachers and the distribution of the "Living With Wildlife" activity sheets for children.

Information Services staff members were responsible for the facilities and audiovisual arrangements for the Human Conflicts With Wildlife: Economic Considerations symposium and numerous other seminars held at the Center.

NWRC Archive—Highlights of the year include the addition of material to the unpublished reports collection and a reboxing effort to preserve these items. Beginning in summer 2000 and continuing through December 2000, a CSU public history student intern has been inventorying and reorganizing the International Program records collection.

NWRC's International Program ran from 1967 to 1995, and the records contain reports, correspondence, and program material. Reorganization will greatly increase accessibility of this important research information. Also, archive staff began a project to feature NWRC history in a monthly format on the Center's Website and the employee lunchroom bulletin board. Topics reflect past programs and personnel.

Library—In FY 2000, NWRC library staff continued to introduce new electronic services to patrons and add new material to the library catalog. More than 60 items, representing almost 40 percent of the cataloging backlog, were processed into the catalog. Additionally, 120 chapters of the Birds of North America were cataloged and made accessible to patrons. Journals once again threatened to overtake available empty space on shelves. The accumulated runs of more than 100 journal titles were shifted to relieve congestion in certain parts of the library. Journal issues for most titles, years 1993–99, were sent to a bookbinder for collation into annual volumes.

To streamline interlibrary loan processes, the library instituted use of the OCLC's Interlibrary Loan Fee Management System and the Interlibrary Loan Management Statistics System. The former automates payment of any incurred interlibrary loan fees. The latter compiles monthly statistics for use by the

NWRC Library in maintaining compliance with copyright guidelines and for use in quantifying the number and type of transactions completed. The library also purchased WebZap™, which, when fully automated, will allow WS personnel to file requests for books and photocopies electronically.

Copies of the NWRC Research Update, Publications List, and annual highlights report were distributed. Several hundred copies of the publication "Symposium on Double-Crested Cormorants: Population Status and Management Issues in the Midwest" were mailed, and the full text of the publication was added to the NWRC Website.

The Information Services Webpage was redesigned and enhanced. Purchase and implementation of Reference Web Poster™ software allows all Website visitors to search ProCite™ databases available in the library. The searchable databases include the 1st through the 18th Proceedings of the Vertebrate Pest Conference (fully subject indexed), the 1st through the 7th Proceedings of the Eastern Wildlife Damage Control Conference, the 1st through the 13th Great Plains Wildlife Damage Control Workshop Proceedings (partially subject indexed), the 1st through the 8th Proceedings: Bird Control Seminar, and the Annotated Bibliography of Bird Hazards to Aircraft.

GLAS™ Access software now allows Web access to the library online catalog, including the main collection and an unpublished reports file. Search tips have been custom designed for easier use. The library journals listing is available from the new Information

Services page, as are NWRC's publications listings. Direct links to the Wildlife Worldwide data base, as well as UnCover™, Agris™, Agricola, and Grateful Med databases (the latter four, searchable at no cost) are also provided. A trial link to OCLC's First Search

databases is available for Fort Collins personnel. Updated descriptions of the NWRC Library, Archives, and overall function of the Information Services unit have been added. New reference links are available to aid staff in location of useful sites.

SEMINARS

During 2000, NWRC continued to be a focal point for interesting seminars by its own and visiting scientists. Twenty-six individuals spoke on such subjects as coyote behavior, best management trapping practices, wildlife

diseases, conservation genetics, wildlife reproductive inhibitors, animal care and research issues, aquaculture, and State agency wildlife damage-compensation programs.

NWRC SEMINARS		
Speaker	Affiliation	Title
Mike Jaeger	NWRC (Berkeley)	R&D of Effective, Socially Acceptable Approaches to Coyote Management
Brian Mitchell	UC–Berkeley	Factors Affecting Responses of Alpha Coyotes to Broadcast Calls
Samara Trusso	International Association of Fish and Wildlife Agencies	Developing Best Management Practices for Trapping in the United States
Richard Duke	University of Colorado Health Sciences Center, Ceres Pharmaceuticals	Vaccines That Target Antigen Presenting Cells
Terrell Salmon	UC–Davis	Anticoagulant Baiting Strategies for California Ground Squirrels
John Pape	Colorado Division of Public Health (Denver)	Zoonotic Disease: What's Waiting in the Woods?
Eric Gese	NWRC (Logan)	Field Research on Predator Ecology
Dale Nolte	NWRC (Olympia)	Overview of the Olympia Field Station: Wildlife and Protecting Forest Resources
Brian Dorr	NWRC (Starkville)	The Great Blue Heron and Aquaculture: Changing Perspectives
Brad Blackwell	NWRC (Sandusky)	Recent Work at the Ohio Field Station: Evaluating New Taste and Visual Avian Repellants
Will Pitt	NWRC (Logan)	Modeling of Coyote Population Dynamics
Mike Avery	NWRC (Gainesville)	Overview on Research at the Florida Field Station

NWRC SEMINARS CONT'D

Speaker	Affiliation	Title
Jack Rhyan	NWRC (Ft. Collins)	Wildlife and Domestic Animal Interactions: Infectious Diseases of Concern
Peter Savarie	NWRC (Ft. Collins)	Overview of Brown Tree Snake Toxicant Research
Christen Williams	Forestry and Natural Resources, Purdue University	Molecular Tools for Managing Wildlife Populations
Christopher Walker	Uppsala University, Sweden	Conservation Genetics...Conservation Biology
J. Andrew DeWoody	University of Georgia, Genetics Department	The Natural History of Fish Mating Systems: A Genetic Perspective
Grant Singleton	Commonwealth Scientific and Industrial Research Organization, Australia	Immunocontraception, Trap-Barrier Systems and Farmer Participatory Research—Rodent Tails From Down Under
Steve Porter	Colorado Division of Wildlife (CDOW)	Managing Wildlife Damage in Colorado: Overview of the CDOW Program
Al Dale	NWRC (Ft. Collins)	Integrating Animal Care and Research Needs
Edward Schafer	NWRC (Ft. Collins, retired)	Review and Status of DWRC Toxicant and Repellant Screening Tests—25 Years of Agent Testing
Jim Glahn	NWRC (Starkville)	A Strategic Plan for Managing Cormorant Damage to Southern Aquaculture
David R. Anderson	CSU, Fishery and Wildlife Biology Department	Perspective on How Science Might Be Done in the Next Century
Earl Campbell	NWRC (Hilo)	Trouble in Paradise: Invasion of Hawaii by Alien Frogs
David Goldade	NWRC (Ft. Collins)	Biotransformation of 3-Chloro-p-toluidine Hydrochloride (CPTH)
Simon C. Nemtzov	Israel Nature and Parks Authority, Science and Conservation Division, Jerusalem	An Israeli Success Story: Conflict Resolution and Conservation of the Endangered Pygmy Cormorant (<i>Phalacrocorax pygmeus</i>)

MEETINGS, WORKSHOPS, AND CONFERENCE PRESENTATIONS

Fifteenth Annual Airport Conference—

This conference, held in Chicago in November 1999, was attended by about 400 representatives from throughout the aviation industry. During the keynote address, Captain Dennis Dolan, first vice president of the Air Line Pilots Association, highlighted bird strikes as a key safety issue facing the aviation industry. Topics covered by NWRC scientists included the development, management, and uses of the National Wildlife Strike Database, new wildlife management tools for airports such as a recently registered anthraquinone formulation to repel geese, and production of a 300-page manual on wildlife hazard management for airports that was distributed to airports nationwide in December 1999. NWRC personnel also had an exhibit at the conference that promoted WS research and management programs at airports. NWRC's research on these topics is funded in part by Federal agencies, private industry, and various airport authorities through interagency and cooperative agreements.

USDA Forest Service Silvicultural Team Visits—

NWRC's Olympia, WA, field station hosted the silvicultural team from the USDA Forest Service's Pacific Northwest Forest and Range Experiment Station on July 5. A group of 18 Forest Service specialists toured the facilities and discussed current and past research activities with field station personnel. NWRC staff provided an overview of the biology and behavior of the wildlife species that damage timber resources and discussed ongoing efforts to alleviate forest damage, as well as research projects being conducted to develop new techniques, to improve the efficacy of existing techniques, and to obtain information on the environmental effects of forest protection practices.

The silvicultural team saw mountain beaver, beaver, and deer within different habitat-use pen research facilities and discussed recent studies of bear activity in the vicinity of supplemental feeding stations that are used in some areas to reduce bear girdling of trees after emergence from hibernation.

NWRC has worked closely with the Forest Service to develop methods to reduce the problems encountered when establishing trees for reforestation, improving species diversity, restoring riparian habitats, or for protecting areas where regeneration or spread of natural timber stands have been impeded by foraging animals.

Electric Utility Consultation—An NWRC researcher was invited by an electric utility construction company to participate in a discussion of woodpecker damage to wood utility poles in June. The discussions centered around the extent of woodpecker damage to utility poles and the potential products for prevention, control, and repair of woodpecker damage to them. The group also identified three potential research areas: repellants, coatings, and habitat management.

NWRC has developed a cooperative research proposal with industry and academic groups to investigate these potential areas of research to prevent woodpecker damage to utility poles. Several additional utility companies in the Southeastern and Northwestern United States have expressed interest.

Cable News Network's Aquaculture Story—

Wildlife biologists with NWRC's Starkville field station were featured on the July 13, 2000, Cable News Network (CNN) television program "Earth Matters." Along with an aquaculture industry representative from Louisiana, NWRC biologists were interviewed regarding their ongoing research associated with the impacts of fish-eating birds on southern aquaculture. In particular, the CNN story highlighted NWRC satellite telemetry research in Alabama, Arkansas, Louisiana, and Mississippi. This research has been designed to evaluate regional movements of double-crested cormorants associated with catfish depredation in these States. The CNN story was an opportunity for the international audience to understand some of the present NWRC aquaculture research activities.

Human Conflicts With Wildlife: Economic Considerations Symposium—The NWRC hosted a “Human Conflicts With Wildlife: Economic Considerations Symposium” August 1–3, 2000, in Fort Collins. In all, 25 invited speakers from the United States, New Zealand, Australia, Germany, and the United Kingdom, representing a cross section of the most knowledgeable authorities in the world on wildlife–human conflicts and the associated costs, addressed more than 100 participants. Symposium topics included methods for quantifying resource damage caused by wildlife and case studies of damage caused by wildlife to agricultural commodities, the costs associated with damage caused by wildlife to nonagricultural activities of humans, the costs and implementation of management programs to control the spread of wildlife–related diseases to humans and domestic livestock, optimization models as a method to allocate research and operational resources in the development of management plans, and the impact of wildlife on other wildlife as it relates to environmental management practices.

This is the third such international symposium hosted by NWRC. The previous two were titled *Repellants in Wildlife Management* (1993) and *Contraception in Wildlife Management* (1995).

Aquaculture for Kids—A wildlife technician at NWRC’s Starkville field station recently presented a “Living With Wildlife” information seminar to 200 elementary school children in July. The technician described problems associated with piscivorous birds feeding at catfish and bait fish farms in the Southern United States and gave an overview of research techniques used to study these birds and how research helps alleviate these conflicts. The children viewed a slide presentation, NWRC posters, and various equipment used to study wildlife (e.g., telemetry, traps, and bands) and were given “Living With Wildlife” materials.

Bird Strike Committee–USA/Canada—About 400 people from 15 countries attended the second annual joint meeting of Bird Strike Committee–USA (BSC–USA), and Bird Strike Committee–Canada at Minneapolis–St. Paul International Airport in August. The meeting was organized by NWRC Sandusky field station biologists in cooperation with several aviation groups and WS personnel from Minnesota. In all, 37 technical papers and posters were presented on topics related to reducing wildlife collisions with aircraft.

Among highlights of the conference were presentations by representatives from several Federal transportation agencies regarding their recommendations to reduce wildlife hazards on airports. Another highlight was the demonstration of various techniques for managing wildlife on airports during an all-day field trip to two airports. Fifteen companies exhibited their wildlife management products or services.

The goal of BSC–USA is to increase communication and professionalism among the diverse groups dealing with wildlife issues on airports, and the 2000 meeting appeared to be highly successful in this regard. WS biologists played an increasingly important role in reducing wildlife hazards at U.S. airports in 1999, providing assistance at 363 airports. About 70 WS biologists attended the meeting.

Third International Symposium and Workshop on Frugivory and Seed Dispersal—A scientist from the NWRC’s Gainesville, FL, field station attended the third International Symposium and Workshop on Frugivory and Seed Dispersal during August, in São Pedro, Brazil. The scientist presented a plenary talk on reducing bird damage to cultivated fruit. The conference was attended by about 300 persons from 30 different countries.

Taming the Wild Stuff—The Society of American Archivists held its annual meeting in Denver from August 31 to September 2. The sessions concerned various archival and records management issues. In addition, plenary speakers provided insight into the future of the archival field and the value of diversity. The NWRC Records Manager/Archivist participated in a panel on material culture. A slide presentation, “Taming the Wild Stuff,” detailed using material culture as exhibit and educational instruments. NWRC’s material culture includes the tools used in research and damage control work, and these items are important historical artifacts.

Mississippi Wildlife Services State Meeting—Wildlife biologists from the NWRC’s Starkville field station made several presentations at the Mississippi WS State meeting, at Plymouth Bluff, MS, in August. The presentations provided an overview of the Mississippi field station’s recent research on double-crested cormorant and great blue heron depredations on aquaculture in Mississippi. The talks focused on nonlethal avian dispersal techniques such as the use of laser light at cormorant roosts, economic impacts and management recommendations concerning great blue heron depredations on catfish aquaculture, and satellite telemetry research regarding regional and migratory movements of cormorants. The presentations demonstrated that information developed from this research is used to design specific tools and management recommendations that can be used by NWRC’s stakeholders.

Lower Mississippi Valley Joint Venture North American Waterfowl Management Team

—A wildlife biologist from the NWRC's Starkville field station met with members of the Lower Mississippi Valley Joint Venture North American Waterfowl Management Team in Vicksburg, MS, in August. Members of the team included waterfowl researchers from Federal agencies and private organizations. The meeting was arranged to address aerial and ground survey issues concerning future research on double-crested cormorant populations and their distribution on catfish aquaculture in the Mississippi delta. The proposed research will be integrated with ongoing satellite telemetry research to address questions concerning use of aquaculture, migratory patterns, population estimation, and population turnover of double-crested cormorants in the Southeast.

Symposium Adjunct to the Wildlife Society's Annual Meeting

—WS, The Humane Society of the United States, and the Jack Berryman Institute cosponsored a symposium entitled "Nonlethal Approaches to Wildlife Damage Management: Promise, Potential, Reality" at the national meeting of the Wildlife Society in Nashville in September. There were 14 presentations by leading scientists (including 3 from NWRC), administrators, and practitioners in the field of wildlife damage management. Issues discussed included the efficacy and humaneness of relocation of nuisance wildlife to resolve conflicts, the effectiveness of various exclusion devices, situations where lethal control is justified, and the potential for reproductive inhibitors. The symposium was successful in promoting constructive dialogue that should lead to greater cooperation among the various governmental and private groups dealing with the growing diversity of wildlife-human conflicts.

PUBLICATIONS

[**Boldface type** indicates that an author is employed at NWRC.]

Andelt, W. F.; **Phillips, R. L.**; Schmidt, R. H.; Gill, R. B. 1999. Trapping furbearers: an overview of the biological and social issues surrounding a public policy controversy. *Journal of Wildlife Management* 27(1): 53–64.

Andrews, R. M.; **Mathies, T.** 2000. Natural history of reptilian development: constraints on the evolution of viviparity. *BioScience* 50(3): 227–238.

Avery, M. L.; Whisson, D. A.; Marcum, D. B. 2000. Responses of blackbirds to mature wild rice treated with Flight Control bird repellent. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 26–30.

Avery, M. L.; **Tiullman, E. A.**; **Humphrey, J. S.**; **Cummings, J. L.**; **York, D. L.**; **Davis, J. E., Jr.** 2000. Evaluation of overspraying as an alternative to seed treatment for application of Flight Control™ bird repellent to newly planted rice. *Crop Protection* 19: 225–230.

Barras, S. C.; **Dolbeer, R. A.** 2000. Reporting bias in bird strikes at John F. Kennedy International Airport, 1979–1998. In: *Proceedings International Bird Strike Committee*; 17–25 April 2000; Amsterdam, Netherlands. 25: 99–112.

Barras, S. C.; **Dolbeer, R. A.**; **Chipman, R. B.**; **Bernhardt, G. E.**; Carrara, M. S. 2000. Bird and small mammal use of mowed and unmowed vegetation at John F. Kennedy International Airport, 1998 to 1999. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 31–36.

Belant, J. L.; **Tyson, L. A.**; **Seamans, T. W.** 1999. Use of alpha chloralose by the WS program to capture nuisance birds. *Wildlife Society Bulletin* 27(4): 938–942.

Blackwell, B. F.; **Seamans, T. W.**; **Dolbeer, R. A.** 1999. Plant growth regulator (Stronghold™) enhances repellency of anthraquinone formulation (Flight Control™) to Canada geese. *Journal of Wildlife Management* 63(4): 1336–1343.

Blackwell, B. F.; **Seamans, T. W.**; **Helon, D. A.**; **Dolbeer, R. A.** 2000. Early loss of herring gull clutches after egg-oiling. *Wildlife Society Bulletin* 28(1): 70–75.

Bryant, B. P.; Savachenko A.; **Clark, L.**; **Mason, J. R.** 2000. Potential for cell culture techniques as a wildlife management tool for screening primary repellents. *International Biodeterioration and Biodegradation* 45(3–4): 175–181.

Bur, M. T.; Tinnirello, S. L.; **Lovell, C. D.**; **Tyson, J. T.** 1999. Diet of the double-crested cormorant in Western Lake Erie. In: Tobin, M. E., tech. coord. Symposium on double-crested cormorants: population status and management issues in the Midwest. Tech. Bull. 1879. Washington, DC: U.S. Department of Agriculture, Animal and Plant Health Inspection Service: 73–85.

Clark, L. 1999. Bird repellents: interaction of agents in mixture. In: Johnston, R. E.; Sorenson, P.; Mueller–Schwarze, H., eds. *Advances in chemical signals in vertebrates*. New York: Kluwer Academic Press: 623–632.

Clark, L.; Bryant, B.; Mezine, I. 2000. Bird aversive properties of methyl anthranilate, yucca, *Xanthoxylum*, and their mixtures. *Journal of Chemical Ecology* 26(5): 1219–1234.

Dolbeer, R. A. 1999. Aerodrome bird hazard prevention: case study at John F. Kennedy International Airport. In: *Proceedings of the international seminar on flight safety and birds in the Middle East*; 25–29 April 1999; Tel Aviv, Israel. Tel Aviv: University of Tel Aviv: 157–166.

Dolbeer, R. A. 1999. Vertebrate pests. In: Steffey, K. L., et al., eds. *Handbook of corn insects*. Lanham, MD: Entomological Society of America: 21.

Dolbeer, R. A. 2000. Birds and aircraft: fighting for airspace in crowded skies. 2000. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 37–43.

Dolbeer, R. A.; **Wright S. E.**; **Cleary, E. C.** 2000. Ranking the hazard level of wildlife species to aviation. *Wildlife Society Bulletin* 28: 372–378.

Dunlevy, P. A.; **Campbell, E. W., III**; Lindsey, G. D. 2000. Broadcast application of a placebo rodenticide bait in a native Hawaiian forest. *International Biodeterioration and Biodegradation* 45(3–4): 199–208.

Engeman, R. M.; Campbell, D. L. 1999. Pocket gopher reoccupation of burrow systems following population reduction. *Crop Protection* 18: 523–525.

Engeman, R. M.; Witmer, G. W. 2000. Integrated management tactics for predicting and alleviating pocket gopher (*Thomomys* spp.) damage to conifer reforestation plantings. *Integrated Pest Management Reviews* 5: 41–55.

Engeman, R. M.; Witmer, G. W. 2000. IPM strategies: indexing difficult to monitor populations of pest species. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 183–189.

***Engeman, R. M.; Krupa, H. W.; Kern, J.** 1997. On the use of injury scores for judging the acceptability of restraining traps. *Journal of Wildlife Research* 2: 124–127.

***Engeman, R. M.; Fiedler, L.; Krupa, H. W.** 1997. Assessing activity of fossorial rodents in southern Morocco. *Journal of Wildlife Research* 2: 167–170.

Engeman, R. M.; Pipas M. J.; Gruver, K. S.; Allen, L. 2000. Monitoring coyote population changes with a passive activity index. *Wildlife Research* 27: 553–557.

Engeman, R. M.; Vice, D. S.; Nelson, G.; Muña, E. 2000. Brown tree snakes effectively removed from a large plot of land on Guam by perimeter trapping. *International Biodeterioration and Biodegradation* 45(3–4): 139–142.

*This book was published in 2000 but with a 1997 date.

Fall, M. W.; Jackson, W. B. 2000. Future technology for managing problems with vertebrate pests and over-abundant wildlife—an introduction. *International Biodeterioration and Biodegradation* 45(3–4): 93–96.

Gese, E. M. 1999. Threat of predation: do ungulates behave aggressively towards different members of a coyote pack? *Canadian Journal of Zoology* 77: 499–503.

Glahn, J. F. 2000. Comparison of pyrotechnics versus shooting for dispersing double-crested cormorants from their night roosts. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 44–48.

Glahn, J. F.; Dorr, B.; Tobin, M. E. 2000. Captive great blue heron predation on farmed channel catfish fingerlings. *North American Journal of Aquaculture* 62: 149–156.

Glahn, J. F.; Reinhold, D. S.; Sloan, C. A. 2000. Recent population trends of double-crested cormorants wintering in the delta region of Mississippi: responses to roost dispersal and removal under a recent depredation order. *Waterbirds* 23(1): 38–44.

Glahn, J. F.; Tobin, M. E.; Harrel, J. B. 1999. Possible effects of catfish exploitation on overwinter body condition of double-crested cormorants. In: Tobin, M. E., tech. coord. Symposium on double-crested cormorants: population status and management issues in the Midwest. Tech. Bull. 1879. Washington, DC: U.S. Department of Agriculture, Animal and Plant Health Inspection Service: 107–113.

Glahn, J. F.; Tomsa, T.; Preusser, K. J. 1999. Impact of great blue heron predation at trout-rearing facilities in the northeastern United States. *North American Journal of Aquaculture* 61: 349–354.

Glahn, J. F.; Rasmussen, E. S.; Tomsa, T.; Preusser, K. J. 1999. Distribution and relative impact of avian predators at aquaculture facilities in the northeastern United States. *North American Journal of Aquaculture* 61: 340–348.

Homan, H. J.; Linz, G. M.; Bleier, W. J. 2000. Winter habitat use and survival of female ring-necked pheasants (*Phasianus colchicus*) in southeastern North Dakota. *American Midland Naturalist* 143(2): 463–480.

Homan, H. J.; Linz, G. M.; Wimberly, R. L.; Peer, B. D. 2000. Cattail management: developing, implementing and refining a nonlethal method to reduce sunflower damage by blackbirds. In: Proceedings of the sunflower research workshop; 18–19 January 2000; Fargo, ND. Bismarck, ND: [a sunflower trade group]. 22: 183–185.

Humphrey, J. S.; Avery, M. L.; McGrane, A. P. 2000. Evaluating relocation as a vulture management tool in north Florida. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 49–53.

Hurlbut, D. B.; Primus, T. J.; Goodall, M. J.; Volz, S. A.; Johnston, J. J. 1999. Determination of propionylpromazine hydrochloride in formulation matrixes using reversed-phase ion pair small bore liquid chromatography. *Journal of AOAC International* 82(6): 1321–1328.

Hurley, J. C.; Volz, S. A.; Johnston, J. J. 1999. Stabilization of the avicide 3-chloro-p-toluidine as the β -cyclodextrin adduct. *Journal of Agricultural and Food Chemistry* 47(7): 2904–2907.

- Hygnstrom, S. E.; **Vercauteren, K. C.** 2000. Cost-effectiveness of five burrow fumigants for managing black-tailed prairie dogs. *International Biodeterioration and Biodegradation* 45(3–4): 159–168.
- Hygnstrom, S. E.; **VerCauteren, K. C.** 2000. Home range and habitat selection of white-tailed deer in a suburban nature area in eastern Nebraska. In: Salmon, T. P.; Crabb, A. C., eds. *Nineteenth vertebrate pest conference*; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 84–87.
- Hygnstrom, S. E.; **Vercauteren, K. C.**; Hines, R. A.; Mansfield, C. W. 2000. Efficacy of in-furrow zinc phosphide pellets for controlling rodent damage in no-till corn. *International Biodeterioration and Biodegradation* 45(3–4): 215–222.
- Johnston, J. J.**; Goldade, D. A.; Kohler, D. J.; Cummings, J. L. 2000. Determination of white phosphorus residues in ducks: an atomic emission detection/compound-independent calibration-based method of generating residue data for risk assessment and environmental monitoring. *Environmental Science & Technology* 34(9): 1856–1861.
- Johnston, J. J.**; Furcolow, C. A.; Volz, S. A.; Mauldin, R. E.; Primus, T. M.; Savarie, P. J.; Brooks, J. E. 1999. Quantitation of pyrethrum residues in brown tree snakes. *Journal of Chromatographic Science* 37: 5–10.
- Johnston, J. J.**; Hurlbut, D. B.; Avery, M. L.; Rhyan, J. C. 1999. Methods for the diagnosis of acute 3-chloro-p-toluidine hydrochloride poisoning in birds and the estimation of secondary hazards to wildlife. *Environmental Toxicology and Chemistry* 18(11): 2533–2537.
- Johnston, J. J.**; Volz, S.; Bruce, K.; Chipman, R.; Luchsinger, J.; McConnell, J.; Owens, R. 1999. Information transfer for wildlife management. *Wildlife Society Bulletin* 27(4): 1043–1049.
- Kimball, B. A.**; Johnson, G. R.; Nolte, D. L.; Griffin, D. L. 1999. An examination of the genetic control of Douglas-fir vascular tissue phytochemicals: implications for black bear foraging. *Forest Ecology Management* 123: 245–251.
- Kimball, B. A.**; Mason, J. R.; Blom, F. S.; Johnston, J. J.; Zemlicka, D. E. 2000. Development and testing of seven new synthetic coyote attractants. *Journal of Agricultural and Food Chemistry* 48(5): 1892–1897.
- Kimball, B. A.**; Johnston, J. J.; Mason, J. R.; Zemlicka, D. E.; Blom, F. S. 2000. Development of chemical coyote attractants for wildlife management applications. In: Salmon, T. P.; Crabb, A. C., eds. *Nineteenth vertebrate pest conference*; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 304–309.
- King, D. T.**; Tobin, M. E.; Bur, M. 2000. Capture and telemetry techniques for double-crested cormorants (*Phalacrocorax auritus*). In: Salmon, T. P.; Crabb, A. C., eds. *Nineteenth vertebrate pest conference*; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 54–57.
- Kitchen, A. M.**; Gese, E. M.; Schauster, E. R. 1999. Resource partitioning between coyotes and swift foxes: space, time, and diet. *Canadian Journal of Zoology* 77: 1645–1656.
- Kitchen, A. M.**; Gese, E. M.; Schauster, E. R. 2000. Changes in coyote activity patterns due to reduced exposure to human persecution. *Canadian Journal of Zoology* 78: 853–857.
- Kitchen, A. M.**; Gese, E. M.; Schauster, E. R. 2000. Long-term spatial stability of coyote (*Canis latrans*) home ranges in southeastern Colorado. *Canadian Journal of Zoology* 78: 458–464.
- Knowlton, F. F.**; Gese, E. M.; Jaeger, M. M. 1999. Coyote depredation control: an interface between biology and management. *Journal of Range Management* 52(5): 398–412.
- Kraus, F.; **Campbell, E. W.**; Allison, A.; Pratt, T. 1999. Eleutherodactylus frog introductions to Hawaii. *Herpetological Review* 30(1): 21–25.
- Lindberg, A. C.; **Shivik, J. A.**; Clark, L. 2000. Mechanical mouse lure for brown treesnakes. *Copeia*: 886–886.
- Linz, G. M.**; Schaaf, D. A.; Wimberly, R. L.; Homan, H. J.; Puch, T. L.; Peer, B. D.; Mastrangelo, P.; Bleier, W. J. 2000. Efficacy and potential nontarget impacts of DRC-1339 avicide use in ripening sunflower fields: 1999 progress report. In: *Proceedings of the sunflower research workshop*; 18–19 January 2000; Fargo, ND. Bismarck, ND: Sunflower Growers Association 22: 162–169.
- Lutman, M.; **Linz, G. M.**; Bleier, W. J. 2000. Characteristics of fall blackbird roosts in the sunflower-growing region of North Dakota. In: *Proceedings of the sunflower research workshop*; 18–19 January 2000; Fargo, ND. Bismarck, ND: Sunflower Growers Association 22: 170–172.
- Mason, J. R.** 2000. Golden eagle (*Aquila chrysaetos*) attacks and kills adult coyote (*Canis latrans*). *The Journal of Raptor Research* 34: 244–245.
- Mason, J. R.**; Clark, L. 2000. The chemical senses in birds. In: *Sturkie's avian physiology*, 5th ed. San Diego, CA: Academic Press: 39–56.

- Mason, J. R.;** Hollick, J.; Kimball, B. A.; Johnston, J. J. 1999. Repellency of Deer Away Big Game Repellent™ to eastern cottontail rabbits (*Sylvilagus floridanus*). *Journal of Wildlife Management* 63: 309–314.
- Mauldin, R. E.; Engeman, R. M.** 1999. A novel snake restraint device. *Herpetological Review* 30(3): 158.
- Mauldin, R. E.; Johnston, J. J.;** Riekens, C. A. 1999. An improved method for analysis of cholecalciferol-treated baits. *Journal of AOAC International* 82(4): 792–798.
- Miller, L. A.; Fagerstone, K. A.** 2000. Induced infertility as a wildlife management tool. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 160–168.
- Miller, L. A.; Johns, B. E.;** Killian, G. J. 1999. Long-term effects of PZP immunization on reproduction in white-tailed deer. *Vaccine* 18(5–6): 568–574.
- Moser, B. W.; **Witmer, G. W.** 2000. The effects of elk and cattle foraging on the vegetation, birds, and small mammals of the Bridge Creek Wildlife Area, Oregon. *International Biodeterioration and Biodegradation* 45(3–4): 151–158.
- Nelms, C. O.; Otis, D. L.; **Linz, G. M.;** Bleier, W. J. 1999. Cluster sampling to estimate breeding blackbird populations in North Dakota. *Wildlife Society Bulletin* 27(4): 931–937.
- Nolte, D. L.** 2000. A repellent to reduce mouse damage to longleaf pine seed. *International Biodeterioration and Biodegradation* 45(3–4): 169–174.
- Nolte, D. L.** 2000. Bears snub pruned trees. *Northwest Woodlands* 16(2): 21.
- Nolte, D. L.;** **Wagner, K. K.** 2000. Comparing the efficacy of delivery systems and active ingredients of deer repellents. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 93–100.
- Nolte, D. L.;** **Wagner, K. K.;** Trent, A.; Bulkin, S. 2000. Fumigant dispersal in pocket gopher burrows and benefits of a blower system. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 377–384.
- Pedersen, C. A.; **Sterner, R. T.;** **Goodall, M. J.** 2000. Strychnine alkaloid and avian reproduction: effects occur at lower dietary concentrations with mallard ducks than with bobwhite quail. *Archives of Environmental Contamination and Toxicology* 38: 530–539.
- Peer, B. D.; **Homan, H. J.;** **Linz, G. M.;** Bleier, W. J. 2000. Effects of cowbird parasitism on blackbird population dynamics and resulting sunflower damage. In: Proceedings of the sunflower research workshop; 18–19 January 2000; Fargo, ND. Bismarck, ND: Sunflower Growers Association 22: 188–189.
- Peer, B. D.; **Linz, G. M.;** **Homan, H. J.;** Bleier, W. J. 2000. Population dynamics of blackbirds responsible for depredation of the Northern Great Plains sunflower crop. In: Proceedings of the sunflower research workshop; 18–19 January 2000; Fargo, ND. Bismarck, ND: Sunflower Growers Association 22: 186–187.
- Pipas, M. J.;** **Witmer, G. W.** 1999. Evaluation of physical barriers to protect ponderosa pine seedlings from pocket gophers. *Western Journal of Applied Forestry* 14(3): 164–168.
- Pipas, M. J.;** **Matschke, G. H.;** **McCann, G. R.** 2000. Evaluation of the efficiency of three types of traps for capturing pocket gophers. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 385–388.
- Pitt, W. C.;** **Knowlton, F. F.;** Ogawa, A.; Box, P. W. 2000. Evaluation of depredation management techniques for territorial animals using a computer model: coyotes as a case study. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 315–318.
- Pochop, P. A.;** **Cummings, J. L.;** Wedemeyer, K. L.; **Engeman, R. M.;** **Davis, J. E., Jr.** 1999. Vegetation preferences of captive Canada geese at Elmendorf Air force Base, Alaska. *Wildlife Society Bulletin* 27(3): 734–740.
- Pochop, P. A.;** **Cummings, J. L.;** **Yoder, C. A.;** Gossweiler, W. A. 2000. Physical barrier to reduce WP mortalities of foraging waterfowl. *Journal of Environmental Engineering* 126(2): 182–187.
- Provenza, F. D.; **Kimball, B. A.;** Villalba, J. J. 2000. Roles of odor, taste, and toxicity in the food preferences of lambs: implications for mimicry in plants. *Oikos* 88(2): 424–432.
- Ramey, C. A.;** **Bourassa, J. B.;** **Brooks, J. E.** 2000. Potential risks to ring-necked pheasants in California agricultural areas using zinc phosphide. *International Biodeterioration and Biodegradation* 45(3–4): 223–230.

Ramey, C. A.; Primus, T. M.; Griffin, D. L.; Johnston, J. J. 2000. Weatherability of a steam-rolled oat groat chlorophacinone ground squirrel bait under field and laboratory conditions. *International Biodeterioration and Biodegradation* 45(3–4): 209–214.

Savarie, P. J.; York, D. L.; Hurley, J. C.; Volz, S.; Brooks, J. E. 2000. Testing the dermal and oral toxicity of selected chemicals to brown treesnakes. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 139–145.

Sawin, R. S.; **Linz, G. M.**; Bleier, W. J. 2000. Locating spring blackbird roosts in the Northern Great Plains: using GIS to expand blackbird management. In: Proceedings of the Sunflower Research Workshop; 18–19 January 2000; Fargo, ND. Bismarck, ND: Sunflower Growers Association 22: 173–175.

Seamans, T. W.; Belant, J. L. 1999. Comparison of DRC-1339 and alpha-chloralose to reduce herring gull populations. *Wildlife Society Bulletin* 27(3): 729–733.

Seglund, A. E.; DeLiberto, T.; Kimball, B. A. 2000. Evaluation of cabergoline as a reproductive inhibitor for coyotes (*Canis latrans*). In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 319–324.

Servoss, W.; **Engeman, R. M.**; Fairaizl, S.; **Cummings, J. L.; Groninger, N. P.** 2000. Wildlife hazard assessment for Phoenix Sky Harbor International Airport. *International Biodeterioration and Biodegradation* 45(3–4): 111–128.

Shivik, J. A.; Bourassa, J.; Donnigan, S. N. 2000. Elicitation of brown tree snake (*Boiga irregularis*) predatory behavior with poly-modal stimuli. *Journal of Wildlife Management* 64: 969–975.

Shivik, J. A.; Clark, L. 1999. The development of chemosensory attractants for brown tree snakes. In: Johnston, R. E., Müller Schwarze, D., Sorenson, P. W., eds. Advances in chemical signals in vertebrates. New York: Kluwer Academic/Plenum Publishers: 649–654.

Shivik, J. A.; Gruver, K. S.; DeLiberto, T. 2000. Preliminary evaluation of new cable restraints to capture coyotes. *Wildlife Society Bulletin* 28: 1–8.

Shivik, J. A.; Wright, W. G.; Clark, L. 2000. Seasonal variability in brown tree snake (*Boiga irregularis*) response to lures. *Canadian Journal of Zoology* 78: 79–84.

Shumake, S. A.; Sterner, R. T.; Gaddis, S. E. 1999. Repellents to reduce cable gnawing by northern pocket gophers. *Journal of Wildlife Management* 63(4): 1344–1349.

Sterner, R. T. 2000. Rodent mining engineers—Colorado's pocket gophers. *Colorado Outdoors* 49(4): 24–27.

Sterner, R. T. 2000. Soil-moisture preferences and soil-use behaviors of northern pocket gophers. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 389–392.

Sterner, R. T.; Crane, K. A. 2000. Sheep-predation behaviors of wild-caught, confined coyotes: some historical data. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 325–330.

Stevens, G. R.; Rogue, J.; Weber, R.; **Clark, L.** 2000. Evaluation of a radar-activated, demand-performance bird hazing system. *International Biodeterioration and Biodegradation* 45(3–4): 129–138.

Stewart, W. B.; **Matschke, G. H.; McCann, G. R.; Bourassa, J. B.; Ramey, C. A.** 2000. Hand baiting efficacy of chlorophacinone and diphacinone grain baits to control valley pocket gophers. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 393–397.

Tobin, M. E., tech. coord. 1999. Symposium on double-crested cormorants: population status and management issues in the Midwest. Tech. Bull. 1879. Washington, DC: U.S. Department of Agriculture, Animal and Plant Health Inspection Service. 164 p.

Tyson, L. A.; Belant, J. L.; Cuthbert, F. J.; Weseloh, D. V. 1999. Nesting populations of double-crested cormorants in the United States and Canada. In: Tobin, M. E., tech. coord. Symposium on double-crested cormorants: population status and management issues in the Midwest. Tech. Bull. 1879. Washington, DC: U.S. Department of Agriculture, Animal and Plant Health Inspection Service: 17–25.

Tyson, L. A.; Dolbeer, R. A.; Belant, J. L. 1999. Changes in early winter abundance of four gull (*Larus*) species on western Lake Erie, 1951–1995. *Ohio Journal of Science* 99(2): 2–5.

VerCauteren, K. C.; Hygnstrom, S. E. 2000. Deer population management through hunting in a suburban nature area in eastern Nebraska. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March, 2000; San Diego, CA. Davis, CA: University of California at Davis: 101–106.

- Vercauteren, K. C.;** Beringer J.; Hygnstrom, S. E. 2000. Netted cage traps for white-tailed deer. In: Proulx, G., ed. Mammal trapping. Sherwood Park, AB: Alpha Wildlife Research and Management, Ltd.: 155–164.
- Wagner, K. K.; Nolte, D. L.** 2000. Evaluation of hot sauce as a repellent for forest mammals. *Wildlife Society Bulletin* 28(1): 76–83.
- Wenning, K. M.; **DeLiberto, T. J.** 2000. Mechanisms of diet selection in coyotes (*Canis latrans*). In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 331–335.
- Werner, S. J.** 2000. Cormorant research and impacts to southern aquaculture. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 81–83.
- Wise, K. K.; Conover, M. R.; **Knowlton, F. F.** 1999. Response of coyotes to avian distress calls: testing the startle-predator and predator-attraction hypotheses. *Behavior* 136(8): 935–949.
- Witmer, G. W.; Pipas, M. J.** 1999. Field evaluation of radiotransmitters for northern pocket gophers. *The Prairie Naturalist* 31(1): 9–20.
- Witmer, G. W.;** Marsh, R. E.; **Matschke, G. H.** 1999. Trapping considerations for the fossorial pocket gopher. In: Proulx, G., ed. Mammal trapping. Sherwood Park, AB: Alpha Wildlife Research and Management Ltd.: 131–139.
- Witmer, G. W.; Nolte, D. L.;** Stewart, W. B. 2000. Integrated pest management of black bear reforestation damage. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 228–235.
- Witmer, G. W.; Nolte, D. L.;** Stewart, W. B. 2000. Integrated pest management of black bear reforestation damage. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 228–235.
- Witmer, G. W.;** **VerCauteren, K. C.;** Mancini, K. M.; Dees, D. M. 2000. Urban–suburban prairie dog management: opportunities and challenges. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 439–444.
- Wright, S. E.** 1999. Behold the geese of March! *Experimental Aircraft Association Chapter 50 Newsletter* Feb.: 9.
- Wright, S. E.;** **Dolbeer, R. A.** 2000. Wildlife strikes: a growing and costly problem for civil aviation in the USA. In: Proceedings of the annual corporate aviation safety seminar; 25–27 April 2000; San Antonio, TX. Alexandria, VA: Flight Safety Foundation 45: 35–52.
- York, D. L.;** **Cummings, J. L.;** **Engeman, R. M.;** **Davis, J. E., Jr.** 2000. Evaluation of Flight Control™ and Mesurol as repellents to reduce horned lark (*Eremophila alpestris*) damage to lettuce seedlings. *Crop Protection* 19: 210–203.
- York, D. L.;** **Cummings, J. L.;** Steuber, J. E.; **Pochop, P. A.;** **Yoder, C. A.** 2000. Importance of migrating salmon smolt in ring billed (*Larus delawarensis*) and California gull (*L. californicus*) diets near Priest Rapids Dam, Washington. *Western North American Naturalist* 60(2): 216–220.
- York, D. L.;** **Cummings, J. L.;** **Engeman, R. M.;** Wedemeyer, K. L. 2000. Hazing and movements of Canada geese near Elmendorf Air Force Base, Alaska. *International Biodeterioration and Biodegradation* 45(3–4): 103–110.
- Zemlicka, D. E.;** **Mason, J. R.** 2000. Response of captive coyotes to Renardine coyote repellent. In: Salmon, T. P.; Crabb, A. C., eds. Nineteenth vertebrate pest conference; 6–9 March 2000; San Diego, CA. Davis, CA: University of California at Davis: 336–338.